

# Benign prostatic hyperplasia

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## Contents

[Aims](#)

[Symptoms](#)

[Primary investigations](#)

[Indications for specialist consultation](#)

[Conservative treatment](#)

[Surgical and other invasive treatments](#)

[Catheter](#)

[Treatment after TURP](#)

[Related evidence](#)

[Bibliography](#)

## Aims

- The diagnosis of benign prostatic hyperplasia is based on symptoms and basic investigations. Other causes of voiding disturbances (prostate cancer in particular) are excluded.
- Conditions requiring surgical management are recognised.
- Follow-up alone or drug therapy are good options in patients with relatively mild symptoms and no complications of urinary tract stricture.

## Symptoms

- Retention symptoms
  - Extraordinary urinary frequency
  - Nocturia
  - Urinary urgency
  - Urge incontinence
- Voiding symptoms
  - Difficulty in the initiation of voiding
  - Poor urine flow
  - Need to strain while voiding
  - Discontinued voiding
  - Feeling of inadequate bladder emptying

- Urinary retention

## Primary investigations

- Symptom questionnaire
  - The most commonly used questionnaire is the DAN-PSS-1. The severity of lower urinary tract symptoms can be classified as follows:
    - score < 7 points = mild
    - score 8 - 18 = moderate
    - score > 18 = severe
  - The questionnaire is useful in the assessment of mild symptoms when decisions are made between follow-up, drug treatment and surgery.
- Writing down details associated with voiding
- Touch per rectum
- Urinalysis
- Serum creatinine
- Serum prostate-specific antigen (PSA)
- Residual urine volume is determined by ultrasonography (See related EBM Guideline: **Determining the volume of residual urine by ultrasonography** available on the EBM Web site) (or if ultrasonography is not available by catheterization). Ultrasonography is useful in the determination of prostatic size (calculated with the same equation as residual urine volume [See related EBM Guideline: **Determining the volume of residual urine by ultrasonography** available on the EBM Web site]), shape, and eventual hydronephrosis.
- Differential diagnosis, see table 1 below.

Table 1. Differential diagnosis on benign prostatic hyperplasia

Condition or disease	History or finding
Prostate cancer	Finding in touch per rectum, elevated serum PSA concentration
Urinary bladder cancer	Haematuria, abnormal cytological finding
Bladder calculi	Haematuria, ultrasonography finding
Cicatricial urethral stricture	Box-shaped flow curve
Stricture of the bladder neck	Earlier invasive treatment
Dyssynergy of the striated sphincter muscle	Small prostate gland, disturbing symptoms associated with voiding
Prostatitis	Tender prostate gland
Overactive bladder	Urgency with possible urge incontinence

## Indications for specialist consultation

## Indications for diagnostic investigations by the urologist

- The patient is under 50 years of age.
- The palpation findings of the prostate are suspicious (nodules)
- Serum PSA is above 10 µg/L (above 4 µg/L in patients under 65 years of age)
  - If the serum total PSA concentration is in the range of 3 - 10 µg/L, measuring free/total PSA ratio is recommended. If this value is under 0.15, the probability of prostatic cancer is increased<sup>1</sup> and a urologist should be consulted.
  - Touch per rectum before determination of serum PSA level does not influence the result.
- Rapidly developing symptoms
- Haematuria (cystoscopy)
- Diabetics who may have neuropathy
- History of pelvic surgery or irradiation
- Neurological disease or injury affecting the function of the urinary bladder
- Necessary medication affecting the function of the urinary bladder
- Lower abdominal pain as the main symptom
- Discrepancy between symptoms and findings
- The investigations performed by the urologist usually include:
  - urine flow measurement
  - transrectal ultrasonography,
- and if necessary also
  - cystometry and pressure-flow examination (recommended before deciding on surgery if the peak flow is >10 mL/s and also when there is a discrepancy between symptoms and findings or the patient has undergone surgery of the lower urinary tract)
  - urethrocystography
  - urography
  - prostatic biopsies.

## Surgical treatment is indicated in the following cases:

- Urinary retention, overflow incontinence or repeatedly more than 300 mL of residual urine
- Severe symptoms (>18 points)
- Dilatation of the upper urinary tract
- Impairment of renal function
- Recurrent macrohaematuria
- Urinary tract infections
- Bladder calculi
- Severe or moderate symptoms in a patient who wants rapid relief or if satisfactory results have not been obtained with other treatments.

## Conservative treatment

### Follow-up

- As the symptoms of prostate hyperplasia vary greatly and the course of the disease in an individual cannot be predicted, follow-up is a suitable approach in patients with mild symptoms. Also in moderate symptoms, follow-up can be the initial approach if the symptoms do not

essentially affect the quality of life and complications have not developed.

- Follow-up includes explaining to the patient the nature of the disease and carrying out basic investigations annually or when symptoms have changed. Opportunistic follow-up during other encounters in primary care is one method of screening.

## Drug treatment

- Although the effectiveness of drug treatment is not as good as that of surgery it is often sufficient in reducing or alleviating the symptoms.
- When deciding on the treatment, cost-effectiveness should also be evaluated, i.e. when would invasive therapy, which usually gives complete cure, cost less and be more convenient for the patient than drug therapy continuing for years (for example, to avoid one invasive treatment, 20 men have to be treated with finasteride for 4 years). Transurethral resection is more cost-effective than drug treatment.
- Patients on drug treatment should be followed up regularly at 6 - 12-month intervals to detect complications resulting from urethral obstruction.
- Drug treatment is contraindicated if the patient has obstructive symptoms (see indications for surgery above).
- The size of the prostate and total serum PSA determine the selection of the therapy:
- If the prostate is not markedly enlarged on palpation or in ultrasonography ( $< 40$  g) and PSA is  $< 1.5$   $\mu\text{g/L}$  the first choice is an  $\alpha_1$ -blocker (e.g. tamsulosin)<sup>2, 3</sup>. If the prostate is markedly enlarged or PSA is  $> 1.5$   $\mu\text{g/L}$  either finasteride or an  $\alpha_1$ -blocker can be used.

## $\alpha_1$ -blockers

- **Tamsulosin** 0.4 mg x 1, **alfuzozin** 5 mg x 2, and prazosin.
- $\alpha_1$ -blockers decrease symptoms, increase peak urinary flow and reduce the volume of residual urine significantly more than placebo.
- The effect of  $\alpha_1$ -blockers is seen rapidly and it has been shown to continue for several years.
- The patients should be followed up initially at intervals of 1 - 3 months.
- The side effects include dizziness, postural hypotension, and retrograde ejaculation. With selective tamsulosine and alfuzozin risk of hypotension is lower.

## Finasteride

- The dose is 5 mg x 1.
- The symptoms are alleviated, the urine flow is increased, and the obstruction is decreased (Level of Evidence=A; Evidence Summary available on the EBM Web site).
- The effect is at its best in patients with large prostates (Level of Evidence=C; Evidence Summary available on the EBM Web site) (In two placebo-controlled studies the average prostatic sizes were 60 and 47 mL.)<sup>1</sup>.
- The effect starts slowly, sometimes as late as 6 months after the onset of treatment. If no effect is observed in 6 months the indications for surgery should be reconsidered.
- The drug decreases prostatic size but the prostate returns to its original size a few months after discontinuation of treatment.
- Impotence may occur as an adverse effect.

## Surgical and other invasive treatments

- Transurethral resection of the prostate (TURP)
  - The only treatment for complicated prostatic hypertrophy and the best documented treatment for uncomplicated disease.
- Transurethral incision of the prostate (TUIP)
  - Suitable for patients with prostates < 30g and no prominent median lobe.
- Open prostatectomy
  - Rarely used nowadays
- Laser prostatectomy (Level of Evidence=B; Evidence Summary available on the EBM Web site) and radiofrequency ablation
  - Long-term results are not available. No histological specimens are obtained.
- Thermotherapy (microwave treatment)
  - Alleviated irritative symptoms
  - Long-term results are not available.
- Balloon dilatation
  - The effect is short-lived. The method is not recommended.
- Stent or spiral
  - Can be used in selected cases in patients with a poor general condition.

## Catheter

- Percutaneous cystostomy is indicated in patients with urinary retention waiting for surgery.
- In selected cases repeated catheterization can be used (preferably by the patient himself).
- A silicon catheter with the balloon filled with hypertonic (5%) saline can be used, but percutaneous cystostomy is preferred.

## Treatment after TURP

- Urine bacterial culture should be taken routinely 4 - 6 weeks after the operation to detect bacteriuria, and always if a urinary tract infection is suspected (pyuria and haematuria may occur as long as 3 months after the operation).
- If bacterial growth is detected, antibiotics are indicated.
- Stress incontinence may be alleviated within 1 year: exercises of pelvic floor muscles may help.
- Oxybutynin or tolterodine can be used for the treatment of urge incontinence and nocturia.

## Related evidence

- *Pygeum africanum* may have some efficacy for benign prostatic hyperplasia (Level of Evidence=C; Evidence Summary available on the EBM Web site).

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